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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DIVISION OF AGRICULTURAL ENGINEERING

S. H. McCrory, Chief

MONTHLY NEWS LETTER

WASHINGTON, D. C., August 20, 1926.

Mr. McCrory returned from his far western trip on July 29. August 9 he left Washington to attend the annual meeting of the Committee on the Relation of Electricity to Agriculture, held at Chicago August 10. After the meeting he went to Madison, Wisconsin, to confer with Mr. Clayton and Professor Jones relative to the survey that Mr. Clayton is conducting on the Wolf River. From Madison he went to St. Paul and held a conference with D. G. Miller and our cooperating parties on the project relating to concrete-alkali. Mr. McCrory then made a swing around the southern circuit, visiting Mr. Ramser at Cape Girardeau, Missouri; Mr. Ellison at McGehee, Arkansas; and Mr. Johnson at Tallulah, Louisiana. Before returning to Washington he will also go to Franklin, Louisiana, to inspect the sugar cane investigations being carried on at that point by Mr. Sutton.

Charles A. Bennett of California begins service with the Division on August 20, as Associate Mechanical Engineer. Mr. Bennett's first assignment will be to assist Mr. Johnson at Tallulah, Louisiana, in connection with studies of cotton drying.

Mr. Clayton is continuing the survey of the Wolf River valley in Wisconsin in the attempt to work out a feasible plan for taking care of the surplus water which at the present time is damaging a very large area of otherwise good farm land. No solution to the problem has yet been reached although the feasibility of extensive cut-offs and reservoirs is being considered.

George R. Boyd has returned East from an extensive trip to the far west in connection with the pyrotol distribution. There is now being planned a southern itinerary during which a number of pyrotol demonstrations will be made in the southern states, from Arkansas east.

The field study of the combined harvester-thresher is still in progress, Mr. Kinsman having spent some time in Washington state, then proceeding to Montana. Messrs. Humphries and Hurst moved north with the harvesting season from Kansas into Nebraska, and thence to Montana. The combine apparently is gaining a large foothold in the wheat country and some interesting results in this study are forecast. Mr. Kinsman will return to Washington about September 1, and Messrs. Humphries and Hurst will return later in the month.

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S. H. McGORRY, Chief

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WASHINGTON, D. C., August 20, 1922.

Mr. McGorry returned from his far western trip on July 29. August 9 he left Washington to attend the annual meeting of the Committee on the Relation of Electricity to Agriculture, held at Chicago August 10. After the meeting he went to Madison, Wisconsin, to confer with Mr. Clayton and Professor Jones relative to the survey that Mr. Clayton is conducting on the Wolf River. From Madison he went to St. Paul and held a conference with D. S. Miller and our cooperating parties on the project relating to concrete weirs. Mr. McGorry then made a swing around the southern circuit, visiting Mr. Ranger at Cape Girardeau, Missouri; Mr. Ellison at McGee, Arkansas; and Mr. Johnson at Tallulah, Louisiana. Before returning to Washington he will also go to Franklin, Louisiana, to inspect the sugar cane investigations being carried on at that point by Mr. Burton.

Charles A. Bennett of California is being sent with the Division on August 10, as Associate Mechanical Engineer. Mr. Bennett's first assignment will be to assist Mr. Johnson at Tallulah, Louisiana, in connection with studies of cotton drying.

Mr. Clayton is continuing the survey of the Wolf River valley in Wisconsin in the attempt to work out a feasible plan for taking care of the surplus water which at the present time is causing a very large area of otherwise good farm land. No solution to the problem has yet been reached although the feasibility of extensive out-of-the-watershed drainage is being considered.

George R. Boyd has returned East from an extensive trip to the far west in connection with the pyroly distribution. There is now being planned a southern itinerary during which a number of pyroly demonstrations will be made in the southern States, from Arkansas east.

The field study of the combined harvester-thresher is still in progress. Mr. Kinman having spent some time in Washington State, then proceeding to Montana. Messrs. Humphries and Hurst moved north with the harvesting season from Kansas into Nebraska, and thence to Montana. The combine apparently is gaining a large foothold in the wheat country and some interesting results in this study are forecast. Mr. Kinman will return to Washington about September 1, and Messrs. Humphries and Hurst will return later in the month.

SINCE HIS RETURN FROM THE MIDDLE WEST IN CONNECTION WITH THE STUDY OF EGG AND POULTRY PACKING PLANTS, MR. BETTS MADE TRIPS TO EASTERN VIRGINIA AND TO MAINE WITH REGARD TO THE CONSTRUCTION OF POTATO STORAGE HOUSES AFTER PLANS OF THIS DIVISION.

B. S. CLAYTON SENT IN THE FOLLOWING RESULTS AS TO THE VALUE OF THE ROUGHNESS COEFFICIENT IN THE BOGUE PHALIA, NEAR HEAD, MISSISSIPPI:

GAGE	DATE	DISCHARGE	"N"	
12.05	2/28/24	4033	0.039	FROM CURVE
10.72	2/29/24	3192	0.036	" "
6.80	11/17/25	1080	0.039	" "
10.88	12/17/25	3000	0.040	" "
9.24	1/22/26	2875	0.036	" "
8.21	3/7/26	2867	0.037	" "
9.90	3/8/26	3064	0.037	" "
8.91	3/9/26	2383	0.037	" "
5.20	3/15/26	944	0.035	" "

THIS IS A NATURAL CHANNEL WITH SAND BOTTOM ABOUT 100 FEET WIDE AND ROUGH BANKS WITH WILLOW AND WEED GROWTH. WATER ALONG BANKS IS ALMOST DEAD, DUE TO BRUSH, TO A WIDTH OF 10 TO 30 FEET FROM OUTER EDGES. SEVERAL OF ABOVE VALUES APPLY TO RISING STAGES. THIS IS A VERY FAVORABLE STATION FOR DETERMINING FRICTION VALUES FOR NATURAL CHANNELS.

THE FOLLOWING REFERS TO WEST BOGUE HASTY AT LITTON, MISS:

GAGE	DATE	DISCHARGE	"N"
8.67	2/27/24	402	0.038
8.14	5/28/24	313	0.045
7.45	5/11/26	258	0.050
5.49	5/12/26	141	0.051
5.04	5/12/26	121	0.054
3.40	5/13/26	55.2	0.063

THESE VALUES OF "N" ARE TAKEN FROM CURVE. THIS STRETCH OF DITCH IS SUBJECT TO SLIDES DUE TO LAYERS OF SAND AND THE SIDES ARE VERY ROUGH. VALUES OF "N" APPEAR TO DECREASE AS GAGE HEIGHTS INCREASE. VALUE OF 0.063 IS PROBABLY A LITTLE TOO HIGH. DIRECT CALCULATION MAY CHANGE FIGURES SLIGHTLY.

PYROTOL SHIPMENTS FOR JULY, FOR LANDCLEARING USE, WERE AS FOLLOWS:

BARKSDALE, WIS.	50,000 LBS.
DUPONT, WASH.	28,200 "
GIBBSTOWN, N.J.	32,050 "

SINCE HIS RETURN FROM THE NIOLE WEST IN CONNECTION WITH THE STUDY OF LOG AND POULTRY RACKING PLANTS, MR. BETTS MADE TRIPS TO EASTERN VIRGINIA AND TO MAINE WITH REGARD TO THE CONSTRUCTION OF POTATO STORAGE HOUSES AFTER PLANS OF THIS DIVISION.

8. 2. CLAYTON SENT IN THE FOLLOWING RESULTS AS TO THE VALUE OF THE ROUGHNESS COEFFICIENT IN THE BOULE PLANT, NEAR HEAD, MISSISSIPPI:

DATE	DISCHARGE	"H"	FROM CURVE
5/28/24	4032	0.032	"
5/28/24	3125	0.032	"
5/17/24	1020	0.032	"
5/17/24	3000	0.040	"
5/28/24	3870	0.032	"
5/17/24	2827	0.032	"
5/17/24	3086	0.037	"
5/17/24	2882	0.037	"
5/17/24	344	0.032	"

THIS IS A NATURAL CHANNEL WITH SAND BOTTOM ABOUT 100 FEET WIDE AND HOLLOW BANKS WITH WILLOW AND WEED GROWTH. WATER ALONG BANKS IS ALMOST DEAD, DUE TO BRUSH, TO A WIDTH OF 10 TO 20 FEET FROM OUTER EDGE. SEVERAL OF ABOVE VALUES APPLY TO RISING STAGES. THIS IS A VERY FAVORABLE STATION FOR DETERMINING FRICTION VALUES FOR NATURAL CHANNELS.

THE FOLLOWING REFERS TO WEST BOULE PLANT AT LITTON, MISS:

DATE	DISCHARGE	"H"
5/27/24	402	0.032
5/28/24	313	0.042
5/11/24	228	0.030
5/12/24	141	0.021
5/12/24	151	0.024
5/12/24	222	0.022

THESE VALUES OF "H" ARE TAKEN FROM CURVE. THIS STATION OF DITCH IS SUBJECT TO SLIDES DUE TO LAYERS OF SAND AND THE SIDES ARE VERY ROUGH. VALUES OF "H" APPEND TO DECREASE AS JAIL HEIGHTS INCREASE. VALUE OF 0.022 IS PROBABLY A LITTLE TOO HIGH. DIRECT CALCULATION MAY CHANGE FIGURES SLIGHTLY.

PHOTOGRAPHS FOR JULY, FOR LANDSLIDING USE, WERE AS FOLLOWS:

- BARKSDALE, N.Y. 20,000 LBS.
- DUPONT, WASH. 25,000 "
- GIBBETOWN, N.Y. 25,000 "

AT THIS WRITING ORDERS ARE BEGINNING TO COME IN QUITE RAPIDLY FROM THE LAKE STATES. THE PLANTS WILL DOUBTLESS BE QUITE BUSY FROM NOW ON.

W. W. McLAUGHLIN AND L. M. WINSOR, IN CONJUNCTION WITH REPRESENTATIVES OF THE BUREAU OF SOILS AND THE OREGON AGRICULTURAL EXPERIMENT STATION, MADE AN ECONOMIC SURVEY OF THE OCHOCO PROJECT IN OREGON TO DETERMINE THE BASIS OF A POSSIBLE FINANCIAL REHABILITATION OF THAT PROJECT.

D. W. BLOODGOOD SPENT THE FIRST HALF OF THE MONTH IN CALIFORNIA, PART OF THE TIME IN THE BERKELEY OFFICE AND THE BALANCE PRINCIPALLY IN STUDYING METHODS USED BY THE CALIFORNIA AGRICULTURAL EXPERIMENT STATION IN DETERMINING THE RELATION OF SOIL MOISTURE TO THE DUTY OF WATER.

MR. BLOODGOOD REPORTS THAT PRACTICALLY ALL CROPS ON THE ESTANCIA, NEW MEXICO, EXPERIMENT TRACT WERE DESTROYED BY HAIL AND THAT MOST OF THEM HAVE BEEN REPLANTED. DUE TO THE LATENESS OF THE SECOND PLANTING, THE CROPS MAY NOT MATURE BEFORE THE FIRST FROST.

UNDER THE DIRECTION OF R. G. HEMPHILL, O. A. FARIS HAS WORKED UP THE RESULTS OF SPECIAL SETS OF SILT SAMPLES TAKEN AT WACO, TEXAS, AND ELSEWHERE. THE TESTS AT STATION 210 SHOW THE FOLLOWING RESULTS:

DEPTH SAMPLE TAKEN, FEET:	VELOCITY IN FT. PER SEC:	PER CENT OF SILT BY WEIGHT:	PER CENT OF SILT BY VOLUME AFTER 7 DAYS.
:	:	:	:
SURFACE :	7.40 :	1.031 :	3.009 :
2.8:	6.68 :	1.079 :	3.265 :
5.6:	6.10 :	1.190 :	2.962 :
8.4:	5.60 :	1.203 :	2.864 :
11.2:	4.75 :	2.117 :	3.716 :
13.2:	2.85 :	3.546 :	4.562 :
BOTTOM 14.0:			

COMMENTING ON THESE RESULTS, MR. HEMPHILL STATES: "IN THIS SAME VERTICAL, THE RATIOS BETWEEN THE PERCENTAGE OF SILT BY WEIGHT AND BY VOLUME SHOW A VERY INTERESTING RELATION, THERE BEING A CONSISTENT DECLINE FROM TOP TO BOTTOM OF THE VERTICAL. THIS, TOGETHER WITH SCREEN TESTS WHICH HAVE BEEN MADE, SEEM TO INDICATE THAT THE EXPLANATION OF THE APPARENTLY ERRATIC RELATION BETWEEN THE PERCENTAGE BY WEIGHT AND BY VOLUME AS DETERMINED BY TUBE TESTS WILL BE FOUND IN THE VARYING COMPOSITION OF THE SAMPLES WITH RESPECT TO THE SIZE OF SILT PARTICLES."

DURING THE PAST MONTH JAMES C. MARR HAS PREPARED 42 ADDITIONAL PLOTS FOR EXPERIMENTS ON THE HELMS TRACT IN IDAHO. FOR THE FIRST SET OF SOIL SAMPLES, BEING TAKEN AT THE PRESENT TIME, 756 FEET OF HAND DRILLING IN HARD SOIL WILL BE REQUIRED.

AT THIS WRITING ORDERS ARE BEING SENT TO COME IN QUANTITY FROM THE STATE. THE MONTH WILL BE SUFFICIENT TO GO TO THE STATE.

W. W. McLaughlin and L. M. Wilson, in connection with the representative of the Bureau of Soils and the Oregon Agricultural Experiment Station, made an informal survey of the Oregon project in Oregon to determine the basis of a possible financial rehabilitation of that project.

G. B. Bloodgood spent the first half of the month in California, part of the time in the Berkeley office and the balance primarily in studying methods used by the California Agricultural Experiment Station in determining the relation of soil moisture to the duty of water.

Mr. Bloodgood reports that practically all crops on the Estancia, New Mexico, Experiment tract were destroyed by hail and that most of them have been replanted. Due to the lateness of the second planting, the crops may not mature before the first frost.

Under the direction of R. G. Humphill, O. A. Faris has worked up the results of special sets of silt samples taken at Wadsworth, Texas, and elsewhere. The tests at Station 210 show the following results:

DEPTH SAMPLE TAKEN, FEET	VELOCITY IN FT. PER SEC.	PER CENT OF SILT BY WEIGHT	PER CENT OF SILT BY WEIGHT AFTER 17 DAYS
1	1.40	1.031	1.008
2	2.58	1.030	1.008
3	2.58	1.030	1.008
4	2.58	1.030	1.008
5	2.58	1.030	1.008
6	2.58	1.030	1.008
7	2.58	1.030	1.008
8	2.58	1.030	1.008
9	2.58	1.030	1.008
10	2.58	1.030	1.008
11	2.58	1.030	1.008
12	2.58	1.030	1.008
13	2.58	1.030	1.008
14	2.58	1.030	1.008
15	2.58	1.030	1.008
16	2.58	1.030	1.008
17	2.58	1.030	1.008
18	2.58	1.030	1.008
19	2.58	1.030	1.008
20	2.58	1.030	1.008
21	2.58	1.030	1.008
22	2.58	1.030	1.008
23	2.58	1.030	1.008
24	2.58	1.030	1.008
25	2.58	1.030	1.008
26	2.58	1.030	1.008
27	2.58	1.030	1.008
28	2.58	1.030	1.008
29	2.58	1.030	1.008
30	2.58	1.030	1.008
31	2.58	1.030	1.008
32	2.58	1.030	1.008
33	2.58	1.030	1.008
34	2.58	1.030	1.008
35	2.58	1.030	1.008
36	2.58	1.030	1.008
37	2.58	1.030	1.008
38	2.58	1.030	1.008
39	2.58	1.030	1.008
40	2.58	1.030	1.008
41	2.58	1.030	1.008
42	2.58	1.030	1.008
43	2.58	1.030	1.008
44	2.58	1.030	1.008
45	2.58	1.030	1.008
46	2.58	1.030	1.008
47	2.58	1.030	1.008
48	2.58	1.030	1.008
49	2.58	1.030	1.008
50	2.58	1.030	1.008
51	2.58	1.030	1.008
52	2.58	1.030	1.008
53	2.58	1.030	1.008
54	2.58	1.030	1.008
55	2.58	1.030	1.008
56	2.58	1.030	1.008
57	2.58	1.030	1.008
58	2.58	1.030	1.008
59	2.58	1.030	1.008
60	2.58	1.030	1.008
61	2.58	1.030	1.008
62	2.58	1.030	1.008
63	2.58	1.030	1.008
64	2.58	1.030	1.008
65	2.58	1.030	1.008
66	2.58	1.030	1.008
67	2.58	1.030	1.008
68	2.58	1.030	1.008
69	2.58	1.030	1.008
70	2.58	1.030	1.008
71	2.58	1.030	1.008
72	2.58	1.030	1.008
73	2.58	1.030	1.008
74	2.58	1.030	1.008
75	2.58	1.030	1.008
76	2.58	1.030	1.008
77	2.58	1.030	1.008
78	2.58	1.030	1.008
79	2.58	1.030	1.008
80	2.58	1.030	1.008
81	2.58	1.030	1.008
82	2.58	1.030	1.008
83	2.58	1.030	1.008
84	2.58	1.030	1.008
85	2.58	1.030	1.008
86	2.58	1.030	1.008
87	2.58	1.030	1.008
88	2.58	1.030	1.008
89	2.58	1.030	1.008
90	2.58	1.030	1.008
91	2.58	1.030	1.008
92	2.58	1.030	1.008
93	2.58	1.030	1.008
94	2.58	1.030	1.008
95	2.58	1.030	1.008
96	2.58	1.030	1.008
97	2.58	1.030	1.008
98	2.58	1.030	1.008
99	2.58	1.030	1.008
100	2.58	1.030	1.008

COMMENTING ON THESE RESULTS, MR. HUMPHILL STATED: "IN THIS CASE VERTICAL, THE RATIO BETWEEN THE PERCENTAGE OF SILT BY WEIGHT AND BY VOLUME SHOW A VERY INTERESTING RELATION, THERE BEING A CONSISTENT DECLINE FROM TOP TO BOTTOM OF THE VERTICAL. THIS, TOGETHER WITH SCREEN TESTS WHICH HAVE BEEN MADE, SEEM TO INDICATE THAT THE EXPLANATION OF THE APPARENTLY ERRATIC RELATION BETWEEN THE PERCENTAGE BY WEIGHT AND BY VOLUME AS DETERMINED BY TUBE TESTS WILL BE FOUND IN THE VARYING COMPOSITION OF THE SAMPLES WITH RESPECT TO THE SIZE OF SILT PARTICLES."

DURING THE PAST MONTH JAMES C. MARR HAS PREPARED 25 ADDITIONAL PLOTS FOR EXPERIMENTS ON THE HELMS TRACT IN TEXAS. FOR THE FIRST SET OF SOIL SAMPLES, BEING TAKEN AT THE PRESENT TIME, 1500 FEET OF HAND DRILLING IN HARD SOIL WILL BE REQUIRED.

RALPH L. PARSHALL VISITED PORTLAND AND SEATTLE FOR THE PURPOSE OF ATTENDING MEETINGS OF THE COMMITTEE ON IRRIGATION HYDRAULICS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS AND THE SUMMER SESSION OF THE SOCIETY. MR. PARSHALL HAS PREPARED THE BELLVUE, COLORADO, COOPERATIVE HYDRAULIC LABORATORY FOR OPERATION, INSTALLING THERE A STANDARD 8-FOOT IMPROVED VENTURI FLUME. IT IS PROPOSED TO MAKE THERE SUFFICIENT TESTS ON THE 8, 6, 4, AND 2-FOOT FLUMES UNDER FREE-FLOW AND SUBMERGED CONDITIONS, AS WELL AS LOSS OF HEAD AND OTHER DATA, TO CHECK UP ON THE VARIOUS TABLES AND DIAGRAMS ALREADY PREPARED.

CARL ROHWER HAS DEVOTED THE MONTH TO LINING THE STORAGE RESERVOIR AT FORT COLLINS FOR THE EVAPORATION EXPERIMENTS FROM LARGE TANKS. FOR SOLDERING THE JOINTS OF THE COPPER LINING, 500 POUNDS OF SOLDER WILL BE REQUIRED.

THE BERKELEY OFFICE HAS RECEIVED THE FOLLOWING REPORTS:

"MUTUAL IRRIGATION COMPANIES IN UTAH," BY WELLS A. HUTCHINS.

"FLOOD IN MEDINA RESERVOIR (TEXAS)," APRIL, 1926" BY
O. A. FARIS.

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PARSONS, J. PARSONS VISITED PORTLAND AND SEATTLE FOR THE PURPOSE OF ATTENDING MEETING OF THE COMMITTEE ON IRRIGATION IN WALES OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS AND THE SUMMER SESSION OF THE SOCIETY. MR. PARSONS HAS RETURNED THE BELLEVUE, O. STAGE, COOPERATIVE HYDRAULIC LABORATORY FOR OPERATION, INSTALLING THERE A STANDARD FLOOD IMPROVED VENTURI FLUME. IT IS PROPOSED TO MAKE THREE DIFFERENT TESTS ON THE 6, 6.5, AND 7.5 FEET UNDER FLOW AND SUBMERGED CONDITIONS, AS WELL AS LOSS OF HEAD AND OTHER DATA TO CHECK UP ON THE VARIOUS TABLES AND DIAGRAMS IN PRACTICE.

CARL ROHMER HAS REQUESTED THE RIGHT TO LEASE THE STORAGE RESERVOIR AT FORT COLLINS FOR THE EVAPORATION EXPERIMENTS FROM LARGE TANKS. FOR BOLTERING THE JOINTS OF THE DAM, LEAVING 500 POUNDS OF BOLTER WILL BE REQUIRED.

THE BERKELEY OFFICE HAS RECEIVED THE FOLLOWING REPORTS:

"NATURAL IRRIGATION COMPARISON IN UTAH," BY WELLS A. HUBBARD.

"FLOOD IN MICHIGAN RESERVOIR (TANK)," APRIL, 1922 BY D. A. FARLEY.

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